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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314			EXAMINER WEINSTEIN, LEONARD J	
			ART UNIT 3746	PAPER NUMBER
			MAIL DATE 12/13/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,116

Applicant(s)

MOENS, ERIK ERIC DANIEL

Examiner

Leonard J. Weinstein

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-25 and 27-38 is/are rejected.
- 7) ☒ Claim(s) 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the amendment of September 2, 2007. In making the below rejections and/or objections the examiner has considered and addressed each of the applicant's arguments.
2. The examiner acknowledges that claims 1-17 have been canceled and claims 18-37 have been added.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 18-23, 29-33, 35, and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Brooke US 2003/0182952. Brooke teaches all the limitations for a dynamic speed limiter for: (claim 18) a compressor 219 having a compressor element with a gas inlet and a gas outlet, a temperature sensor 244 arranged to determine the outlet temperature in the gas outlet, a speed sensor, element 180 (¶0029), arranged to determine the rotational speed of the compressor element, a motor 184 driving the compressor 219 with adjustable speed, and a speed control device 266 for the motor 184, a dynamic speed limiter 230 having a hysteresis module coupled to the speed control device and to the temperature and speed sensors (¶0033-0035), wherein the hysteresis module is configured with a hysteresis upper temperature limit, a hysteresis lower temperature limit, and a permitted maximum speed range

including a minimum rotational speed and a maximum rotational speed (§0006 and §0035), wherein upon detecting from the temperature sensor that the hysteresis upper temperature limit of the outlet gas has been reached, the hysteresis module is configured to lower the rotational speed of the compressor element by a speed change via the speed controller when a measured rotational speed of the compressor element is in a high speed range approximately at the compression element maximum rotational speed (§0037), and wherein upon detecting from the temperature sensor that the hysteresis lower temperature limit of the outlet gas has been reached, the hysteresis module is configured to increase the rotational speed of the compressor element by a speed change via the speed controller when the measured rotational speed of the compressor element is in a low speed range approximately at the minimum rotational speed (§0039); (claim 19) a hysteresis upper temperature limit is lower than a maximum critical threshold value of the outlet temperature above which compressor damage can occur (§0039); (claim 20) a speed delimiter detecting from the temperature sensor that the specified hysteresis lower temperature limit of the outlet gas is reached, the hysteresis module is configured to lower the rotational speed of the compressor element via the speed controller device when a measured rotational speed is in an upper speed range approximate to the maximum compressor element rotational speed (§0040), and wherein the hysteresis module is configured to raise the rotational speed of the compressor element when the measured rotational speed is in a lower speed range approximately at the compressor element minimum rotational speed (§0039); (claim 21) a hysteresis module is configured to affect the speed control device to enable the compressor element to operate in the maximum permitted speed range when it detects from the temperature sensor that the outlet temperature has reached the hysteresis lower temperature limit, as compressor 219 operates at a medium speed mode until

compressor has traversed entire temperature range for the next lower speed range (§0040); (claim 22) a speed change is adjustable when the hysteresis upper temperature limit is reached, with super high speed range (§0039); (claim 23) a speed change is adjustable such that a resulting decrease of the outlet temperature is smaller than the difference between the hysteresis upper temperature limit and the hysteresis lower temperature limit to avoid cyclic instable behaviour of the rotational speed of the compressor element (§0037-0038); (claim 29) a speed delimiter capable of setting a maximum critical threshold value of the outlet temperature is adjustable between 150 C and 350 C, as Brooke teaches the that invention of the instant reference is not limited to the range set for in the disclosure and therefor is capable of operating based on a "temperature set point" between 150 C and 350 C (§0037); (claim 31) a hysteresis module is further configured with a memory for storing gas outlet temperature curves representing the outlet temperature as a function of the rotational speed of the compressor element and the hysteresis upper and lower temperature limits, and a speed jump for the rotational speed that is effected when the hysteresis upper or the lower temperature limit is reached (§0044); (claim 32) a hysteresis module is further configured to determine from the speed sensor whether the rotational speed of the compressor element is situated in the low speed range or in the high speed range in order to effect the correct speed adjustment when the hysteresis upper temperature limit is reached (§0040); (claim 33) a memory capable to provide an automatic restart as a same speed as when a compressor was running before (§0044); (claim 35) a hysteresis module is configured to receive a measurement of the gas outlet temperature continuously (§0043); (claim 37) and a speed delimiter capable of setting a maximum critical threshold value of the outlet temperature is adjustable between 200 C and 300 C, as Brooke teaches the that invention of the instant reference is not limited to the range

set for in the disclosure and therefor is capable of operating based on a "temperature set point" between 200 C and 300 C (¶0037).

Further Brooke teaches the method of claim 30 for a compressor 219 having a dynamic speed limiter 230 for a compressor 219 having a compressor element with a gas inlet and a gas outlet, a temperature sensor 244 to determine the outlet temperature in the gas outlet, a speed sensor, element 180 (¶0029) to determine the rotational speed of the compressor element, a motor 184 with adjustable speed driving the compressor 219, and a speed control device 266 for the motor 184, comprising the following steps: providing the dynamic speed limiter with a hysteresis module, the hysteresis module being coupled to the speed control device and to the sensors for the outlet temperature and the rotational speed (¶0006), detecting the gas outlet temperature of the compressor element (¶0034), configuring the hysteresis module with a hysteresis upper temperature limit, a hysteresis lower temperature limit, and a permitted maximum speed range within a compressor element minimum rotational speed and a maximum rotational speed (¶0035), when the gas outlet temperature reaches the specified hysteresis upper temperature limit, causing the hysteresis module to lower the rotational speed of the compressor element via the speed control by a speed change when a measured rotational speed is in a high speed range approximately at the maximum rotational speed (¶0039), and when the gas outlet temperature reaches the specified hysteresis lower temperature limit, causing the hysteresis module to increase the rotational speed of the compressor element by a speed change when the measured rotational speed is in a low speed range approximately at the minimum rotational speed (¶0040).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 24-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooke US 2003/0182952 in view of Cler 4,897,798. Brooke teaches all the limitations as discussed but fails to teach the following limitations that are taught by Cler: (claim 24) a module is configured to receive a measurement with a certain periodicity, as defined by the set-back time of Cler; (claim 25) a module is configured such that the periodicity of the measurements is increased when a measurement exceeds an upper limit for that measurement, as the control system transfers from a set-back to set-point operation temperature is monitored in a different sequence corresponding to a periodicity (col. 7 ll. 16-32; col. 8 ll. 3-12); and (claim 27) a control device including at least one safety device in order to prevent extreme conditions (col. 7 ll. 39-54). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a control sequence of a compressor so that when an

temperature limit is detected, a monitoring operation is changed in order to better predict future operation of a compressor and determine an overall efficiency (Cler – col. 2 ll. 55-64).

8. Claims 28 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooke US 2003/0182952. Brooke teaches all the limitations as discussed but fails to teach: (claim 28) a dynamic speed limiter configured to operate the compressor optimally with a speed ratio larger than 2.5 or (claim 36) and a dynamic speed limiter is configured to operate the compressor with a speed ratio between 2.7 and 3.5. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a speed limiter configured to operate with a speed ration over 2.5, and further a speed ratio between 2.7 and 3.5, since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

9. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooke US 2003/0182952 in view of Cler 4,897,798. A combination of Brooke and Cler teaches all the limitations as discussed except for a module configured to receive a measurement of once per minute. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a module of a speed limiter to receive a measurement once per minute, since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

10. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooke US 2003/0182952. Brooke teaches all the limitations as discussed except for an upper temperature limit being set to less than a critical maximum threshold by a value of 2C or less. It would have

been obvious to one having ordinary skill in the art at the time the invention was made to modify a speed limiter so that an upper temperature limit is set to less than a critical maximum threshold by a value of 2C or less, since the claimed values are merely an optimum or workable range. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Allowable Subject Matter

11. Claim 26 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard J. Weinstein whose telephone number is (571) 272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Karmer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LJW

DEVON KARMER
PATENT EXAMINER

Devon Karmer
12/10/07